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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,528	02/05/2004	Tetsu Kachi	248600US0	3061
22850	7590	02/09/2006	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			SMITH, BRADLEY	
			ART UNIT	PAPER NUMBER
			2891	

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/771,528	KACHI ET AL.	
	Examiner	Art Unit	
	Bradley K. Smith	2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-6 and 8-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6 and 8-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/5/04</u> . | 6) <input checked="" type="checkbox"/> Other: <u>search notes</u> . |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Sony Corp (10-223901). Sony Corp. disclose a first layer composed of a group III nitride semiconductor, a second layer composed of a group III nitride semiconductor, and a gate electrode, wherein the first layer has a region formed between the gate electrode and the second layer; wherein a channel is formed in at least one of: (1) the first layer, (2) the second layer, (3) the region between the first layer and the second layer; and wherein the conductivity type of the second layer is inversed with respect to the conductivity type of carriers flowing in the channel (both holes and electrons could flow through the channel layer). With respect to claim 2, Sony Corp disclose an electrode in contact with the channel layer.

Claims 1,2, 4-6, and 8-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Saito et al. (US Patent 6,933,544). With respect to claims 1 and 16, Saito et al. disclose a first layer composed of a group III nitride semiconductor, a second layer composed of a group III nitride semiconductor, and a gate electrode, wherein the first layer has a region formed between the gate electrode and the second layer; wherein a channel is formed in at least one of: (1) the first layer, (2) the second layer, (3) the region between the first layer and the second layer; and wherein the conductivity type of the second layer is inversed with respect to the conductivity type of carriers flowing in the channel (both holes and electrons could flow through the channel layer). With respect to claim 2, Saito et al. disclose an electrode in contact with the channel layer. With respect to claims 4 and 15, Saito et al. disclose a first layer composed of a group III nitride semiconductor of a first conductivity type(1), a second layer (2) composed of a group III nitride semiconductor of a second conductivity type , a third layer (2) composed of a group III nitride semiconductor of the first conductivity type , and a gate electrode (6), wherein the first layer has a region formed between the gate electrode and the second layer; wherein the third layer has a region formed between the first layer and the second layer; and wherein the band gap of the third layer is less than the band gap of the first layer (figures 1,3,4, or 8 and column 12 lines 27-31 disclose that AlGa_N could be substituted with InGa_N). With respect to claim 5, Saito et al. disclose, a first layer composed of a group III nitride semiconductor of a first conductivity type, a second layer composed of a group III nitride semiconductor of a second conductivity type, a third layer composed of a group III nitride semiconductor, and a

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gate electrode, wherein the first layer has a region formed between the gate electrode and the second layer; wherein the third layer has a region formed between the first layer and the second layer, and wherein the band gap of the third layer is less than the band gap of the first layer and the second layer (the band gap could be changed by using a different material which Saito discloses in column 12 lines 27-31). With respect to claim 6, Saito disclose the third layer is composed of a group III nitride semiconductor. With respect to claim 8 Saito et al. disclose a gate electrode, a first layer composed of a group III nitride semiconductor of a first conductivity type, and a second layer composed of a group III nitride semiconductor of a second conductivity type located on a side of the first layer opposite to the gate electrode (see figure 1). With respect to claim 9-12 Saito disclose, the semiconductors are in direct contact and can have different bandgaps if different materials are used (the band gap could be changed by using a different material which Saito discloses in column 12 lines 27-31). With respect to claim 13, Saito et al. disclose the same structure therefore the device will operate the same (further more this is a device claim and the recitation does not further define the claimed invention, but just define how it operates). With respect to claim 14, Saito et al disclose a gate insulation layer between the first layer and the electrode (see figure 12).

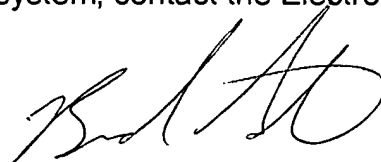
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley K. Smith whose telephone number is 571-272-1884. The examiner can normally be reached on 10-6.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Bradley K. Smith', is positioned above the printed name.

Bradley K Smith
Primary Examiner
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